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Joint Program Executive Office for Chemical and Biological Defense

Joint Project Manager, Radiological & Nuclear Defense (JPM-RND)

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JPM-RND Mission and Vision

Mission

The Joint Project Manager for Radiological and Nuclear Defense is responsible for research, development, acquisition, fielding and life-cycle support of joint radiological and nuclear defense systems supporting the National Military Strategy

Vision

Collaboratively develop and deliver Radiological & Nuclear Defense capabilities to support our warfighters, our nation and our allies

Funding Sources

- This is NOT CBDP funding

- For joint programs (i.e. Radiological Detection System (RDS), Joint Personal Dosimeter (JPD)), OSD Nuclear Matters funds RDT&E and a small amount of Procurement; the Services' POMs augment the joint procurement to cover the majority of the total system requirement

- For Army-specific programs (i.e. PDR-75A/DT-236A Dosimeter), Army G8 and the Army Reserves provide funding

Current JPM-RND Activities/Portfolio Cross Multiple Mission Areas

Interdiction	Elimination		Passive Defense	Consequence Management	Forensics

- **Personal Dosimetry**
  - **Passive and Active**
- **Contamination Monitoring/Avoidance**
  - **Survey & Measurement**
  - **Point Detection**
  - **Radiological Mapping**
- **Search & ID (Wide Area Search)**
  - **Airborne, Vehicle, Man-portable**
- **Forensics Ground Sample Collection**

- **Net Ready**
  - **Situational Awareness**
  - **Decision Support**
  - **Reach-back**

Joint Personal Dosimeter (JPD)

- Mission: JPD will record and retrieve a Service member's radiation exposure for occupational and tactical uses. The final recorded reading will qualify as a "dose-of-record" for personnel medical records.

- Program Objective: Leverage the ongoing Navy dosimeter replacement program to deliver a joint solution that addresses OPERATION TOMODACHI lessons learned for common, interoperable equipment with adequate sensitivity (5 mrem) and common units of measure; eliminate parts obsolescence; and reduce life-cycle costs.

- Potential Application: USN, USA, USMC, USAF (monitoring the program).

Current Schedule

✓**Joint MDD:** 29 March 2012
- **JPD MS-C:** 4QFY15
- **JPD Testing:** 1QFY16 – 4QFY16
- **JPD Full Rate Production:** 2QFY17

Existing Navy "Active" Dosimeter

IM-270

Existing Army "Passive" Dosimeters

PDR 75/DT 236

PDR 75A/DT 236A

Radiological Detection System (RDS)

- Mission: RDS is intended to replace DoD's legacy RADIAC survey meters (AN/PDR-77/VDR-2, MFR Suite, and ADM-300). The RDS will provide the Warfighter with the capability to measure alpha, beta, gamma, neutron, and low energy x-rays.

- Potential Users: USN, USA, USMC, USAF.

- **For questions, please contact the KO: Diane Dei, Contract Specialist, Army Contracting Command-APG, Edgewood Contracting Division, Office: 410-436-4478**

Legacy Systems

Army - AN/PDR-77

Navy - MFR Suite

USAF – ADM 300

Existing & Upcoming Requirements

Joint Requirements	Type	Date Approved
Radiological and Nuclear (RN) Standoff Detection (SOD)	ICD	29 Sep 2008
National Technical Nuclear Forensics (NTNF)	ICD	1 Sep 2010
Countering Nuclear Threats (CNT)	ICD	24 Apr 2011
CBRN Sensors for Application on Unmanned (and Manned) Platforms	ICD	3 Oct 2005
CBRN Field Analytics	ICD	12 Jan 2010
CBRNE Response Support to Incident Management Sense	ICD	8 Jun 2005
CBRN Consequence Management (CM)	ICD	14 Oct 2010
Detect, Assess, and Defend	ICD	8 Dec 2008
Dismounted Recon Sets, Kits and Outfits (DR SKO)	CDD	8 Sep 2010
WMD Elimination	ICD	5 Jul 2012
DRAFT Man-Portable Radiological Detection System	CPD	In Final Staffing
DRAFT Radiological Detection System	CDD	In Final Staffing
DRAFT Joint Personal Dosimeter	CPD	In Staffing
Advanced CBRNE Family of Systems	CDD & CPD	Just Starting

Potential Future Investment Areas

- **March 2014 Initial Prioritization of RN Defense Investment Areas yielded high interest areas**
  - **Isotope Identification**
  - **Wide Area Search**
  - **Manned Platform Mounted Detectors**
  - **Unmanned Platform Mounted Detectors**
- **JRO is working with the Stakeholders to refine the initial investment areas into specifics capabilities**
  - **Planned completion: 2QFY15**

Summary of Near to Mid-Term Efforts

Funded

Joint Dosimeter


IM-270


PDR 75/DT 236


PDR 75A/DT 236A

→ Joint Personal Dosimeter

Joint Survey Meter


MFR


ADM-300


PDR-77/VDR-2

→ Radiological Detection System

Projected Future Efforts

Joint Point Detection

→ Vehicle Installation, Ship RADIAC

Army Wide-to-Localized Search & ID

→ Advanced CBRNE FOS and MRDS

Joint Isotope Identification

High Resolution

Mini-RIID

Medium Resolution

→ RIID FOS

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Current Business Opportunity

Program	RFP Release
Radiological Detection System (RDS)—Joint RADIAC	Final RFP 2QFY15

For questions, please contact the KO:

Diane Dei, Contract Specialist, Army Contracting Command-APG, Edgewood Contracting Division, Office: 410-436-4478

JPM-RND Points of Contact

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Questions?

Back-up charts

PDR-75A/DT236A Army Dosimetry System

Background:

- Records radiation exposure to the Warfighter
- PDR-75/DT236 in production over 20 years with 8410 units fielded; total need of 10,761 systems
- New production contract awarded 2011 for PDR-75A/DT236A; full material release in FY13
- Optically Stimulated Luminescence technology achieves 1000 times greater sensitivity
- Significantly smaller and lighter
- Accredited for "dose of record"

Fielding Status:

- Initial Fielding of 2,194 readers and 219,400 dosimeters complete to Army units

New Orders:

- Army Reserves: 1750 readers and 175,000 dosimeters

Characteristic	PDR-75	PDR-75A
Dose Range (gamma)	30 to 2000 cGy	0.05 to 3000 cGy
Minimum sensitivity	±15 cGy	± 0.05 cGy
Weight	25 lbs	6 lbs (with case)
Size	3600 cubic inches (including case)	440 cubic inches
Ease of use	Complicated 4- knob design	Single button use
Reading rate	60 per hour	Over 100 per hour
Dose of Record	No	Yes – Through Army Dosimetry Center

RN Defense Challenges

- Net Ready Requirements: Security/Information Assurance
- Ruggedization & Mil Standards
- Cost of providing sources for operational training
- Testing: Standardization and sharing of test data
- Lengthy, potentially sporadic production

RN Sense Vision

Current

Mid-Term

Far-Term

Detection

STAND ALONE DETECTORS

SINGLE DETECTOR FOR ALL SERVICES

SEARCH FOR THREAT SOURCES

TAG, TRACK, AND LOCATE

FORENSICS

IMAGING

BUILT IN SENSOR TECHNOLOGY

STANDOFF DETECTION FOR THREAT SOURCES

FORENSICS AUTONOMOUS ROBOTICS

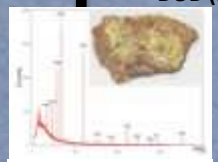
Navy

Air Force

Army

Single RADIAC for DOD (Example)

Search for Threat sources



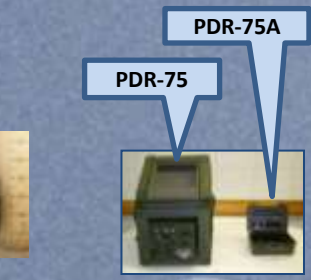
Isotope Identification

Self Detecting Materials

Immediate Threat Detection

Multi-sensor *analysis*

Ensemble and Material Integrated Sensors



DATA ACQUISITION
Machine language or single sensor information

INFORMATION DEVELOPMENT
Connections or visualization to provide insight

ACTIONABLE INTELLIGENCE
Intentions or actions

Dosimetry

BATTLEFIELD DOSIMETRY

LOW-LEVEL DOSIMETRY

OOCUPATIONAL AND BATTLEFIELD DOSIMETRY

REALTIME INETEGRATED DOSIMETRY

SELF DETECTING TECHNOLOGIES

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Investment Areas by RN Mission (High Priority In Blue)

Interdiction	Elimination		Passive Defense	Consequence Management	Forensics
RN Standoff			Manned Platform Mounted		RN Standoff
Isotope Identifiers			Unmanned Platform Mounted		Telescoping Remote Detection
Telescoping Remote Detection			Area Detectors		Isotope Identifiers
Wide Area Search	Unmanned Platform Mounted		Collective Protection		Sample Collection
Alternative Signatures	Contamination Mitigation Fixed Site		Warning & Reporting		Sample Containment & Handling
	Man-portable X-ray		Contamination Mitigation Equipment		
	Render Safe		Portal Monitoring	Contamination Mitigation Fixed Site	
			Continuous Air Monitoring		
			Thermal Curtains		
			Flash Blindness		
Shielding					
Decision Analysis & management					
Contamination Mitigation Personnel					
Respiratory & Ocular RN Protection					
Bio/Internal Dosimetery					
Contamination Monitoring (RDS)					
Active/Passive Dosimeter (JPD)					

Executing | High Priority | Lower Priority | Ground NTNF

JPEO's "RN" Defense Portfolio

- JPM-Radiological & Nuclear Defense: Detection, Search & ID, Dosimetry, Forensics, etc
- JPM-Contamination Avoidance: Dismounted Reconnaissance Sets Kits & Outfits
- JPM-Guardian: Installation Protection, JCTD efforts, Common Analytical Lab
- JPM-Protection: Suits, Masks, Decontamination, Collective Protection, MDAPs
- JPM-Information Systems: Awareness, Warning and Reporting, Plume Modeling
- JPM-Medical Countermeasures Systems: Diagnostics & Therapeutics